

## ABSTRACT OF THE DISCLOSURE

A method is disclosed for efficiently determining exact loss rate, or a loss curve, for a traffic source transmitted at a specified rate. The loss curve of a traffic source characterizes the loss rate of the traffic stream as a function of the allocated buffer size

5 for a given transmission rate. Utilization of loss curve characterization allows for optimal resource allocation for a given source within a packet network. The present invention provides a deterministic method for computing the loss curve of a traffic source,

examples of which include multimedia streams, elementary video streams, and MPEG-2 transport streams. The present method exploits the piecewise linearity of the loss curve

10 and computes only the points at which the slope of the loss curve changes. The method is memory efficient and executes rapidly, for instance, a loss curve for a two-hour elementary video stream was determined within eleven seconds on a conventional Sun Ultra-2™ workstation.